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10/28/97



TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED OFFICE (DO/EO/US)

DOCKET NO.: Metal 1258-IJS

INTERNATIONAL APPLICATION NO. PCT/EP96/02766
INTERNATIONAL FILING DATE 25/June/1996
PRIORITY DATE CLAIMED 27/June/1995

TITLE OF INVENTION
DEVICE FOR AUTOMATICALLY EMPTYING A BULK CONTAINER

APPLICANT(S) FOR DO/EO/US
Peter Sandler, Karl Strobach

Applicant herewith submits to the United states Designated Office (DO/US) the following items under 35 USC 371:

- 1. ☒ This express request to immediately begin national examination procedures (35 USC 371(f)).
- 2. ☒ The U.S. National Fee (35 USC 371(c)(1)) and other fees as follows:

CLAIMS (1) FOR	(2) NUMBERED FILED	(3) NUMBER EXTRA	(4) RATE	(5) CALCULATIONS
TOTAL CLAIMS	6 -20=	0	X \$ 22.00	\$ 0.00
INDEPENDENT CLAIMS	2 -3=	0	X \$ 82.00	0.00
MULTIPLE DEPENDENT CLAIM(S) (if possible) +			\$270.00	
BASIC FEE			\$700.00	+ 700.00
Surcharge of \$ 130.00 for furnishing the National fee or oath or declaration later than 20 months from any claimed priority date (37 CFR 1.445(a)(5)).				+
TOTAL OF ABOVE CALCULATIONS				= 700.00
Reduction by 1/2 for filing by small entity, if applicable. Affidavit must be filed also. (Note 37 CFR 1.9, 1.27, 1.28).				-
SUBTOTAL				700.00
Credit of \$ for full International Search Fee previously paid to the USPTO for searching corresponding International Application (Note 37 CFR 1.445(a)(4)).				-
SUBTOTAL				\$ 700.00
Processing fee of \$ 130.00 for furnishing the English Translation later than 20 months from any claimed priority date (37 CFR 1.445(a)(6)).				+
TOTAL FEES ENCLOSED				\$ 700.00

- a. ☐ A check in the amount of \$_____ to cover the above fees is enclosed.
- b. ☒ Please charge my Deposit Account No. 19-3869 in the amount of \$ 700.00 to cover the above fees. A duplicate copy of this sheet is enclosed.
- c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any over-payment to Deposit Account 19-3869. A duplicate copy of this sheet is enclosed.
- 3. ☒ A copy of the International Application as filed (35 USC 371(c)(2)).
 - a. ☒ is transmitted herewith
 - b. ☐ is not required, as the application was filed in the United States Receiving Office.
 - c. ☐ has been transmitted.
 - i. ☐ by the International Bureau.
 - ii. ☐ by the applicant on (date) _____.
- 4. ☒ A translation of the International application into English (35 USC 371(c)(2)).

5. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 USC 371(c)(3)).
a. ☒ are transmitted herewith.
b. ☐ have been transmitted
i. ☐ by the International Bureau
ii. ☐ by the applicant on (date) _____.

6. ☒ A translation of the amendments to the claims under PCT Article 19 (35 USC 371(c)(3)).

7. ☒ An oath or declaration of the inventor (35 USC 371(c)(4)).

Other document(s) or information included:

8. a. ☒ An international search report or declaration under PCT Article 17(2)(a).
b. ☐ The international search report has not yet issued.

9. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.

10. ☒ An assignment document for recording.

- Please mail the recorded assignment document to
a. ☒ the person whose signature, name and address appears at the bottom of this page.
b. ☐ the following:

11. ☒ The above checked items are being transmitted.

- a. ☒ before the 18th month publication.
b. ☐ after publication and the Article 20 communication but before 20 months from the priority date.
c. ☐ after 20 months but before 22 months (surcharge and/or processing fee included).
d. ☐ after 22 months (surcharge and/or processing fee included).

NOTE: Petition to revive (37 CFR 1.137(a) or (b)) is necessary if 35 USC 371 requirements are submitted after 22 months.

12. ☐ At the time of transmittal, the time limit for amending claims under Article 19
a. ☐ has expired and no amendments were made.
b. ☐ has not yet expired.

13. ☐ Certain requirements under 35 USC 371 were previously submitted by the applicant on _____
namely:

14. ☒ Preliminary Amendment

Ira J. Schaefer, Esq.
SPRUNG KRAMER SCHAEFER & BRISCOE
120 White Plains Road
Tarrytown, New York 10591
(914) 332-5056

SIGNATURE

26,802
REGISTRATION NO.

"Express Mail" mailing label
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Date of Deposit October 28, 1997
I hereby certify that this paper or fee
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Postal Service "Express Mail Post Office
to Addressee" service under 37 CFR 1.10 on
the date indicated above and is addressed
to the Assistant Commissioner for Patents,
Washington, D.C. 20231
on October 28, 1997

SPRUNG KRAMER SCHAEFER & BRISCOE

By Ira J. Schaefer

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Peter Sandler, Karl Strobach
Serial No. : To Be Assigned
Filed : Herewith
For : DEVICE FOR AUTOMATICALLY EMPTYING A BULK
CONTAINER
Art Unit : N/A
Examiner : N/A

October 24, 1997

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

PRELIMINARY AMENDMENT

Prior to the first Office Action, kindly amend the
application as follows:

IN THE SPECIFICATION:

Page 1

Line 1, delete "Description";

Before Line 2, insert --BACKGROUND OF THE
INVENTION--;

Before Line 15, insert --SUMMARY OF THE
INVENTION--;

Page 4

Before Line 3, insert --BRIEF DESCRIPTION OF THE
DRAWINGS--;

Before Line 7, insert --DETAILED DESCRIPTION OF
THE INVENTION--.

IN THE CLAIMS:

Please amend the claims as follows:

2. (Amended) The device as claimed in claim 1, [characterized in that] wherein the front board wall (5) can be swivelled by up to 250° by means of the rotating mechanism (4).

3. (Amended) The device as claimed in [any of claims 1 and 2, characterized in that] claim 1, wherein while emptying the bulk container (2), the frame (1) can be set in a pulsating movement.

4. (Amended) The device as claimed in [any of claims 1 to 3, characterized in that] claim 1, wherein upon emptying the bulk container (2), the frame (1) can be lowered to an inclination of about 15°.

5. (Amended) The device as claimed in [any of claims 1 to 4, characterized in that] claim 1, wherein the base (15) is movable.

6. (Amended) Use of the device as claimed in [any of claims 1 to 5] claim 1 for biological containers in a composting plant for biological waste.

CONDITIONAL PETITION FOR EXTENSION OF TIME

If any extension of time for this response is required, applicant requests that this be considered a petition therefore. Please charge the required Petition fee to Deposit Account No. 19-3869.

ADDITIONAL FEE

Please charge any insufficiency of fees, or credit any excess to our Deposit Account No. 19-3869.

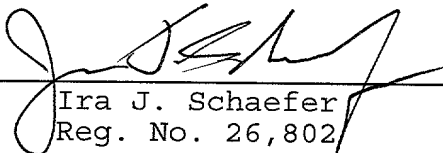
REMARKS

The present preliminary amendment is being submitted in order to amend the specification to add section headings. Applicant has also amended the claims in order to place the claims in better condition for examination.

Entry of the amendment and an early favorable action on the merits are respectfully requested.

Respectfully submitted,

SPRUNG KRAMER SCHAEFER & BRISCOE

BY 
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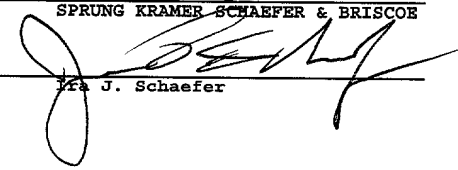
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to:

Assistant Commissioner for Patents,
Washington, D.C. 20231

on October 28, 1997

SPRUNG KRAMER SCHAEFER & BRISCOE

By:


Ira J. Schaefer

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My residence, post office address and citizenship are as stated below next to my name,

DEVICE FOR AUTOMATICALLY EMPTYING A BULK CONTAINER

(check one) ☒ is attached hereto.

_____ was filed on _____ as _____

Application Serial No. _____ or _____

(if applicable)

was filed on _____ as

PCT International Application No. _____

(if applicable)

and was amended through _____

(if applicable)

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations §1.56.

Thereby claim foreign priority benefits under Title 35, United States Code, §119(a)-(d) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Priority Claimed

195 23 225.9 Germany 27/June/1995 X yes ___ no
(Number) (Country) (Day/Month/Yr. Filed)

PCT/EP96/02766 PCT 25/June/1996 X yes ___ no
(Number) (Country) (Day/Month/Yr. Filed)

 (Number) (Country) (Day/Month/Yr. Filed) ☐ yes ☐ no

I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below.

(Application Number)

(Filing Date)

(Application Number)

(Filing Date)

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)

(Filing Date)

(Status-patented,pending,abandoned)

(Application Serial No.)

(Filing Date)

(Status-patented,pending,abandoned)

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

Arnold Sprung, Reg. No. 17,232; Nathaniel D. Kramer, Reg. No. 25,350; and Ira J. Schaefer, Reg. No. 26,802, all of 120 White Plains Road, Tarrytown, New York 10591-5534, my attorneys with full power of substitution and revocation.

SEND CORRESPONDENCE TO:
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DIRECT TELEPHONE CALLS TO:
IRA J. SCHAEFER, ESQ.
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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punished by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

FULL NAME OF SOLE OR FIRST INVENTOR

INVENTOR'S SIGNATURE

DATE _____

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1997-10-13

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FULL NAME OF SECOND JOINT INVENTOR, IF ANY

INVENTOR'S SIGNATURE

DATE _____

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73. 70. 94

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Case No. 93 01 27

**Device for Automatically Emptying a
Bulk Container**

Description

The present invention relates to a device for automatically emptying a box-shaped bulk container via its one front board wall capable of being tilted towards one of the lateral board walls.

Devices for emptying large containers perform tilting and bouncing movements. By means of an enormous amount of equipment, the containers are opened on the devices, tilted, emptied and brought into the horizontal position. This procedure is very costly in the case of complex and hardly accessible plants. Emptying a plurality of containers within a relatively short period of time requires a large amount of personnel. The coordination of the operating sequences is binding capacities.

It is the object of the present invention to provide a device for automatically emptying a box-shaped bulk container, onto which the bulk container can be put by means of conventional

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reloading means and can be transferred without much effort and be emptied quickly.

This object is solved by a device comprising a base with a frame mounted thereon, which is pivotally mounted on the base at its one broadside and can be tilted upwards in longitudinal direction by up to 60°, and with which the bulk container mounted thereon for being tilted over the tiltable front board wall can be rigidly coupled, where the processes of coupling and uncoupling between bulk container and frame, of unlocking and locking as well as of swinging the front board wall open and closed by means of a rotating mechanism and of tilting the frame can be performed under program control.

The GR-A-254595 discloses a device for emptying a box-shaped container filled with bulk material, where for emptying purposes the container open at the top must first be closed by means of a cover formed of two portions and is then tilted by about 140°, so that the cover inclined with respect to the horizontal then forms the bottom of the container and the lower portion of the cover is opened for emptying the bulk material. This device can, however, not be used for automatically emptying a box-shaped bulk container which can be emptied via one of its front board walls.

The device in accordance with the invention operates fully automatically. A crane is putting the bulk container onto the frame. The bulk container is rigidly coupled with the frame by means of a twist-lock system. The twist-lock system is operated hydraulically. As soon as a hydraulically actuated cylinder has released the locking rods of the bulk container via a lever mechanism, the tiltable front board wall thereof is unlocked by a program-controlled, hydraulically actuated cylinder, in that unlocking is released by means of a bolt. By means of an electrically operated rotating mechanism the tiltable front board wall is opened, and upon opening the

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same, the frame is tilted upwards by means of a hydraulic cylinder, so that the contents of the bulk container can slide out of the same. The emptying process can be accelerated in that the frame is set in a pulsating movement by means of the hydraulic cylinder. Upon returning the frame to the horizontal position, the base can be moved on a track to a laterally disposed washing place, where the bulk container firmly connected with the frame can be rinsed with water and cleaned.

A preferred embodiment of the invention consists in that by means of the rotating mechanism the tiltable front board wall can be swivelled by up to 250° towards one of the lateral board walls. This opening angle is particularly advantageous, as the bulk material can unimpededly leave the bulk container without a risk of damaging the front board wall.

In accordance with the further embodiment of the invention, emptying the bulk container is accelerated in that the frame can be set in pulsating movements. Particularly short emptying periods are achieved with a frequency of 3 times in 1.5 sec.

Upon emptying the bulk container, the frame can be tilted back to an angle of inclination of about 15°. With this angle of inclination, cleaning the bulk container is performed very efficiently.

An expedient device consists in that the base can be moved on a track by means of an electric drive. The device can also be mounted on a movable base, for instance on a truck.

In accordance with the invention, the device can be used for emptying biological containers of a composting plant for biological waste.

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The invention is represented in the drawing by way of example and will subsequently be explained in detail, wherein:

Fig. 1 shows a side view of the device with a bulk container.

Fig. 2 shows a section A-A of the device in accordance with Fig. 1.

By means of a crane, the bulk container 2 is put onto the frame 1 of the base 15 and rigidly coupled with the frame 1 by means of a twist-lock system 3. The twist-lock system 3 is operated hydraulically under program control. As soon as a program-controlled, hydraulically actuated cylinder 8 has released the locking bolt 10 by means of a lever mechanism 9, an unlocking bolt is introduced into the lug 14 of the locking rods 12 of the front board wall 5 by means of a program-controlled, hydraulically actuated cylinder 11. Subsequently, the locking rods 12 of the front board wall 5 are pulled downwards by a program-controlled, hydraulically actuated cylinder 13, so that the front board wall 5 is unlocked. When the bulk container 2 is lowered, a rotating mechanism 4 mounted on the frame 1 for opening the front board wall 5 is introduced into a lug 6 disposed on the front board wall 5. Upon lowering the bulk container 2, the front board wall 5 is opened by means of a rotation of about 250° effected by the rotating mechanism 4. Subsequently, the frame 1 is tilted by about 60° by means of a program-controlled, hydraulically actuated cylinder 7. The frame 1 can pulsate by means of the cylinder 7 with a frequency of 3 times in 1.5 sec. The bulk container 2 is emptied and then tilted back into the horizontal position. Subsequently, the base 15 is moved for about 5 m towards the washing station, and the frame 1 is moved upwards to an angle of 15° by means of the hydraulically actuated cylinder 7. In this position, the bulk container 2 is washed. Upon washing, the frame 1 is tilted back into the

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horizontal position. The front board wall 5 is closed and locked under program control. Then, the bulk container 2 is uncoupled under program control by means of the twist-lock system 3. The bulk container 2 can be lifted from the frame 1 by means of a crane.

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Claims

1. A device for automatically emptying a box-shaped bulk container (2) via its one front board wall (5) capable of being tilted towards one of the lateral board walls, characterized by a base (15) with a frame (1) mounted thereon, which is pivotally mounted on the base with the one broadside and can be tilted upwards in longitudinal direction by up to 60°, and with which the bulk container (2) mounted thereon for being tilted over the tiltable front board wall (5) can be rigidly coupled, where the processes of coupling and uncoupling bulk container and frame, of unlocking and locking as well as of swinging the front board wall open and closed by means of a rotating mechanism (4) and of tilting the frame can be performed under program control.
2. The device as claimed in claim 1, characterized in that the front board wall (5) can be swivelled by up to 250° by means of the rotating mechanism (4).
3. The device as claimed in any of claims 1 and 2, characterized in that while emptying the bulk container (2), the frame (1) can be set in a pulsating movement.
4. The device as claimed in any of claims 1 to 3, characterized in that upon emptying the bulk container (2), the frame (1) can be lowered to an inclination of about 15°.
5. The device as claimed in any of claims 1 to 4, characterized in that the base (15) is movable.
6. Use of the device as claimed in any of claims 1 to 5 for biological containers in a composting plant for biological waste.

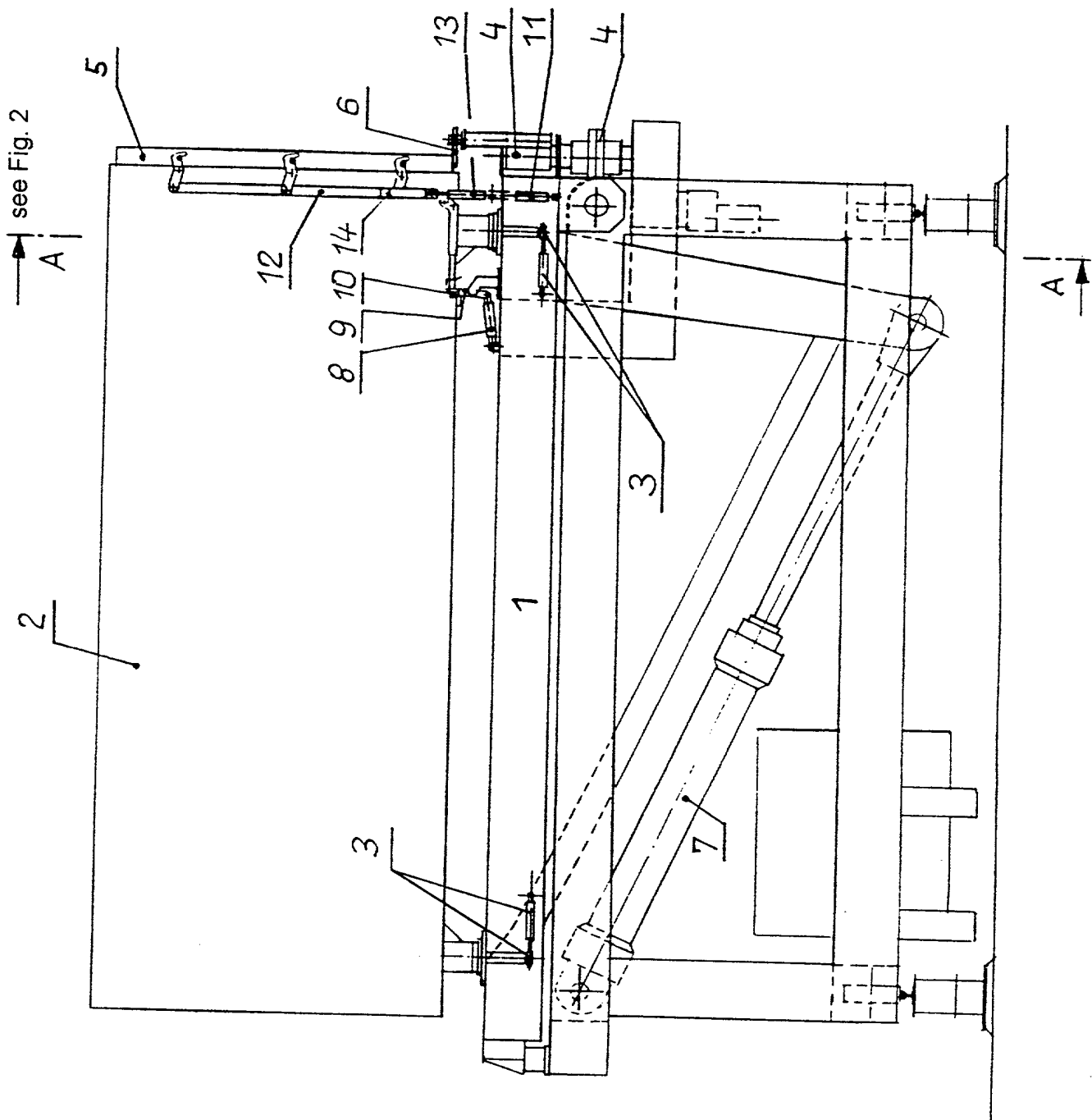
- 7 -

Abstract**Device for Automatically Emptying a Bulk Container**

A bulk container can be emptied via its one front board wall capable of being tilted towards one of the lateral board walls. For automatically emptying the bulk container, the same can be put onto a frame pivotally mounted on a base and capable of being tilted upwards in longitudinal direction and can be rigidly coupled with the same, where coupling and uncoupling, locking and unlocking as well as swinging the front board wall open and closed and tilting the frame can each be performed under program control.

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Fig. 1



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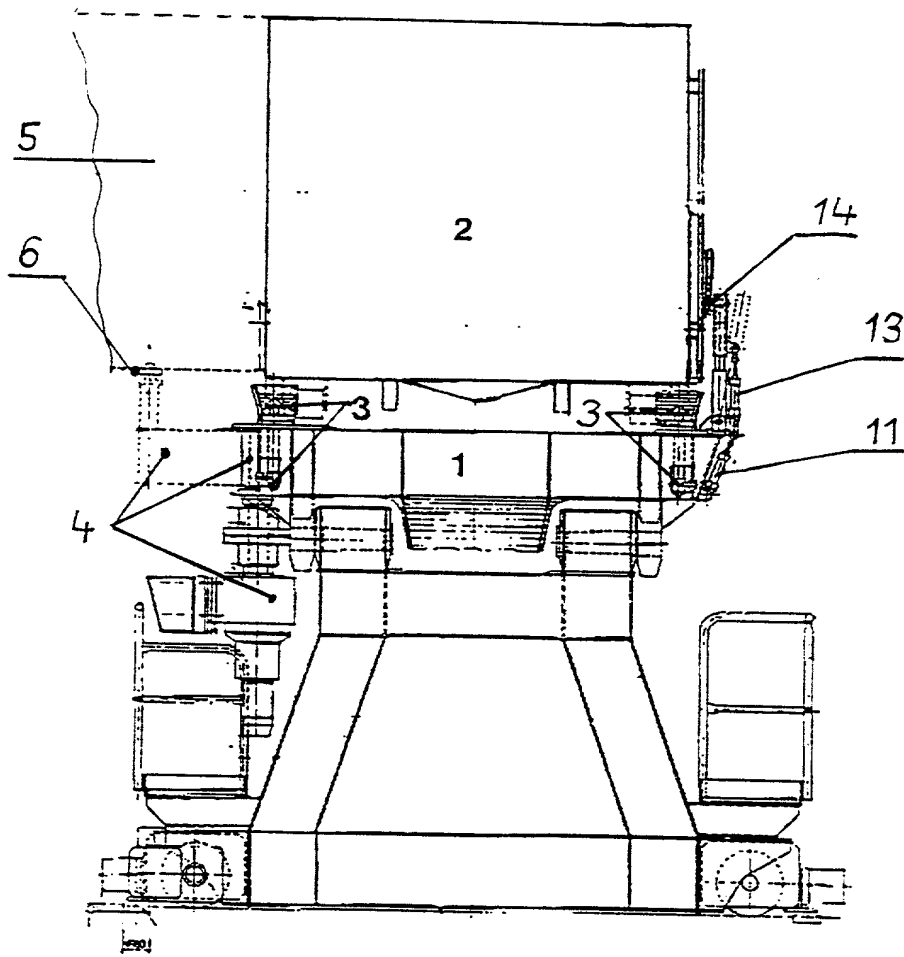


Fig. 2